

















ADA COURTROOM ASSISTIVE LISTENING SYSTEM

Description:

The Basic Courtroom System, model WIR SYS 1, is the complete hearing assistance solution for the courtroom. Listeners wear wireless RX22-4 receivers to hear the proceeding anywhere in a 28,000 ft² area**. For the severely hard of hearing, the RX22-4 can be equipped with a neckloop (included) to amplify their telecoil equipped hearing aid. SoundPlus infrared technology ensures privacy and security: the message of the proceeding doesn't travel outside the walls of the courtroom.

Each WIR SYS 1 package includes: one (1) TX9 emitter, one (1) MOD 232 modulator, four (4) body-pack style RX22-4 receivers, four (4) HED 021 Headphones, one (1) neckloop and one (1) RPK 005 rack panel kit. The WIR SYS 1 meets and exceeds government ADA regulations for public hearing assistance, and is backed by a five-year warranty.*

MOD 232 Modulator:

Size, Weight: 8.5" W x 8.2" D x 1.7" H (21.5 cm x 20.8 cm x 4.4 cm), 3.1 lbs (1.5 kg)

Color: Black epoxy paint with white legends

Rack Mount: 1/2 rack space wide, 1 rack space high, one or two modulators may be mounted in a

single IEC rack space with RPK 005 (single) or RPK 006 (double) Rack Mount Kits

Power Supply: Wall Transformer, 24VAC, 50-60 Hz, 15VA

TFP 016, UL/CSA North America:

TFP 027-01, 2-pin Schuko plug, CE Europe: UK: TFP 027-02, 3-pin UK plug, CE

Modulation: FM Wideband, +50kHz deviation, 50uS pre-emphasis

Carrier Frequency: Channel A: Selectable, 2.3/2.8/3.3/3.8 MHz, Channel B: Selectable, 2.3/2.8/3.3/3.8 MHz

Signal-to-Noise Ratio: More than 60dB

Frequency Response: 30 to 16,000 Hz, +1 dB, -3 dB, electrical response

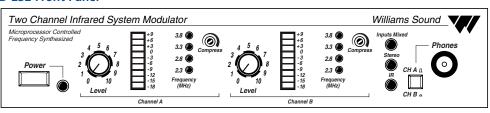
Less than 2%, electrical response Total Harmonic Distortion:

Audio Processing: Compression (slope) adjustable from 1:1 to 4:1

Switchable compression gain: Moderate: 16 dB. Max: 33 dB

Auto Carrier Shut-Off: 15-minute timer shuts off carrier when no audio is present (can be disabled)

Fig. 1: MOD 232 Front Panel



Power Switch: Two-position push button, ON/OFF

Power Indicator: Green LED

Audio Level Controls: CHA and CHB Input Level, rotary knobs CHA and CHB Audio Level, 10-segment LED's Audio Indicators:

Carrier LEDs: 4 green LED carrier "on" indicators per channel (indicates frequency, malfunctions)

Compress Control: 1:1 to 4:1

Indicates inputs A and B audio are mixed and transmitted by CHA, CHB off Input Mix LED:

Stereo LED: Indicates stereo mode

Selects CH1 or CH2 for phones when not in stereo mode Phones Switch:

Phones Output: 1/4" TRS headphone jack. Accepts stereo, mono, and any impedance phones.

Infrared Test LED: IR LED for receiver testing, monitoring, and audio signal testing.

NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE!

**In single channel mode with TX9 emitter

* 90 days on accessories.



















Fig. 2: MOD 232 Rear Panel

Audio Line Output Jacks:

Baseband Input Jack:

Audio Line MOD 232 Infrared System Modulator Input CH B 12345678 **(0** \oplus **(**0 100 Ohms

Power Input: 3-Pin Molex, 24 VAC, 50-60 Hz, 15 VA

Audio Input Jack: CHA and CHB combination XLR/TRS jack

Balanced, Lo-Z, 100 μV min. to 90 mV max., 1mV nominal, 3 kΩ input impedance, sup-Mic Level:

plies switchable simplex power per DIN 45596 for condenser mics

Balanced or unbalanced, 21 mV min. to 10 V max., 212 mV nominal, 100 $k\Omega$ Line Level:

RCA Jack, CHA and CHB, 500 mV, unbalanced, 100 Ω source impedance, load imped-

ance must be greater than $1k\Omega$

Configuration Switches: CHA and CHB 8-position DIP switch, selects Mic/Line input, compressor gain, simplex

power, discrete or mixed inputs, carrier frequency, channel disable, auto shut-off timer BNC, allows mixing with additional MOD 232 Modulator (4CH operation), 100mV, 50Ω

input impedance, use with MOD 232, BNC, RG-58 Cable

Baseband Output Jack: Two BNC jacks carry baseband signal, 100 mV/channel, 50 Ω source impedance, for use

with WIR TX9 or MOD 232 only

CE, FCC, RoHS, WEEE Approvals:

Operating Requirements: 0-50° C ambient temperature, non-condensing, non-corrosive atmosphere

Warranty: 5 years on modulator, 90 days on accessories

WIR TX9 Emitter:

Dimensions, Weight: 11.25" W x 6.25" H x 2.125" D (28.6 cm x 15.9 cm x 5.4 cm), 1.9 lbs (0.9 kg)

Color: Black with white legends, red acrylic lens

Wall Transformer, 24 VAC, 50-60 Hz, 35 VA, 3-pin MOLEX Connector Power Supply:

North America: TFP 010, UL/CSA

Europe: TFP 027-01, 2-pin Schuko plug, CE TFP 027-02, 3-pin UK plug, CE UK: Note: Each WIR TX9 requires its own power supply

Power Cable: NEC Class 2 wiring, two-conductor, 18 ga, 200' (61 m) max. length

Indicators: Green LED power indicator, red LED baseband indicator

50 kHz to 8 MHz Carrier Frequency:

Emitter IR Power: 3.5 watts

28,000 ft² (2,600 m²) in single-channel mode when using the RX12-4 or RX22-4 Receiver Coverage Area:

18,000 ft² (1,700 m²) in two-channel mode when using the RX12-4 or RX22-4 Receiver

3,500 ft² (325 m²) in single-channel mode when using the RX14-2 Receiver 3,063 ft² (285 m²) in single-channel mode when using the RX16 Receiver

(See coverage area diagrams)

Baseband Input: BNC, 100 mV per carrier, 50 Ω , for use with WIR TX9 or MOD 232 only

Baseband Output: BNC, 50 Ω , for use with TX9 only

Baseband Cable: RG 58 Coax, BNC connectors, maximum 1000' (300 m) length

Operating Requirements: 0-50° C ambient temperature, non-condensing, non-corrosive atmosphere

Wall or Ceiling Mount: BKT 024 Omnidirectional mount, Mic Stand Kit: SS-11 or SS-6 Mounting Kits:

5 years on Emitter, 90 days on accessories Warranty:

Approvals: CE, FCC, RoHS, WEEE

WIR RX22-4 Four-Channel Receivers, RX14-2 Two-Channel Receiver, Compatible Receivers:

RX16 Two-Channel Receiver



Fig. 3: WIR TX9 Rear Panel

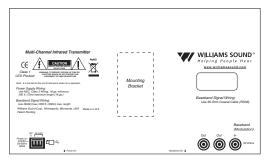
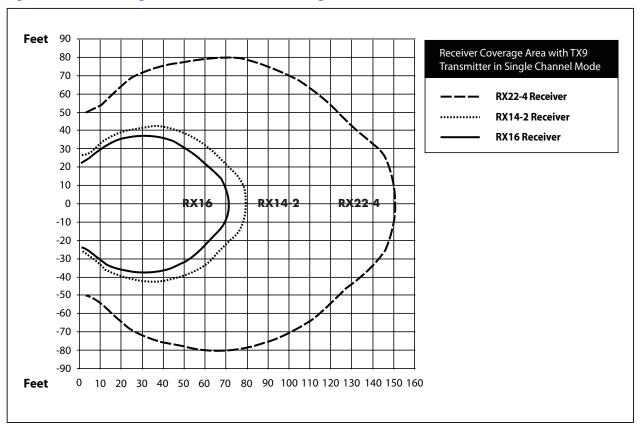


Fig. 4: Receiver Coverage Area with TX9 Emitter in Single Channel Mode



The coverage area for the TX9 will vary depending on the receiver being used. The diagram above demonstrates the receiver coverage when operating a single TX9 emitter in single channel mode. Patterns are direct radiation patterns.

Note: Reflections of the infrared light from walls, ceilings and floors may change these patterns.











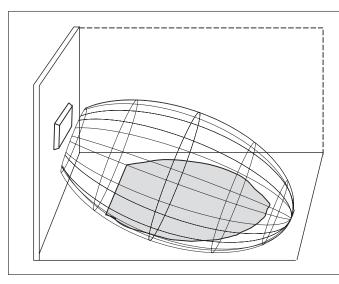








Fig. 5: 3-Dimension Foot Pattern



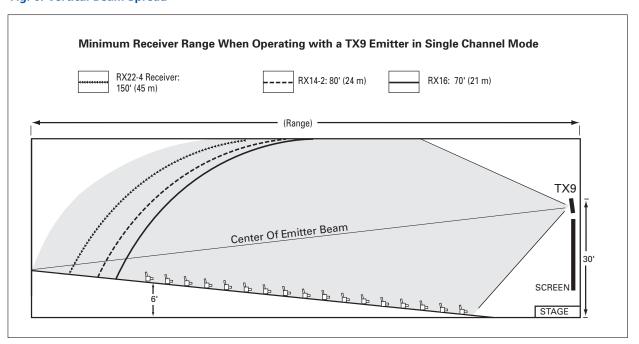
The TX9 floods the listening audience with a cone shape light pattern as shown here.

The path of the cone shape light leaves a pattern on the ground, or "foot print, " and indicates where the strongest receiver reception will occur.

The actual coverage area will vary depending on the sensitivity of the receiver being used. Refer to Figures 4 and 7 to determine how many emitters are required for 100% coverage of the listening area.

To determine the best location for the emitter, it helps to think of the IR emitter as an invisible floodlight. You'll want to aim it so the listeners are "flooded" with the infrared light. The emitter should also be positioned high enough so it won't be blocked by people and other physical obstructions. See Figure 6 below. Mount the emitter at least 2 ft. (.61 m) above the audience. Position the emitter to face in a slightly downward angle, 20°, that will increase the "throw" of the infrared beam.

Fig. 6: Vertical Beam Spread















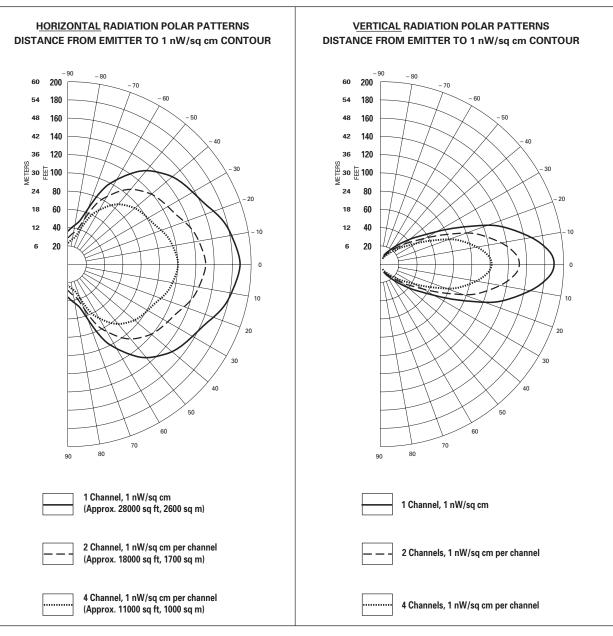






Maximum Range When Using the RX22-4 Infrared Receiver

Fig. 7: Horizontal and Vertical Radiation Polar Plots



Reflections of the infrared light from walls, ceilings, and floors may change these patterns. Important: Remember to point the emitter towards the listening audience!

If you're not getting sufficient coverage with a single, properly installed TX9 Emitter, you may need to add additional WIR TX9 Emitters to achieve full coverage of your listening area. Figures 8a and 8b illustrate how multiple emitters can be used for large room installations.



















Multiple Emitters Installed to Maximize Coverage

Fig. 8a: Overlapping Illumination Patterns to Cover Larger Listening Areas

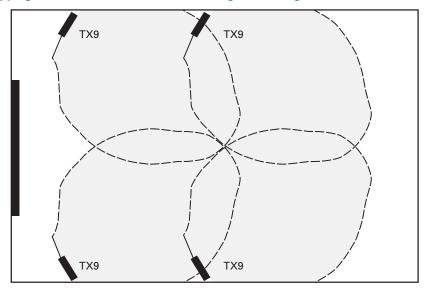
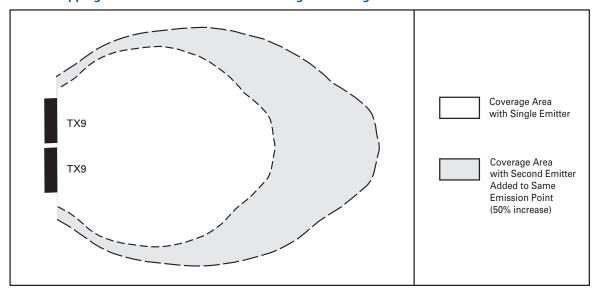


Fig. 8a above is a typical example of how multiple emitters are used to cover larger listening areas. Generally it is desirable for the illumination patterns to overlap. Note: The coverage area will vary depending on the infrared receiver being used; refer to Figures 4 and 7 to determine how many emitters are required to achieve full coverage of a listening area.

Fig. 8b: Overlapping Illumination Patterns to Cover Larger Listening Areas



When two emitters are used at the same emission point in single channel mode, the overall coverage area increses 50%. When using an RX22-4 receiver, as a result, the coverage area will increase to an estimated 42,000 ft² (3,902 m²); the RX14-2 will increase to 5,250 ft² (488 m²); the RX16 will increase to 4,590 ft² (426 m²).



















WIR RX22-4 Receiver:

Receiver Style: Body-Pack, dual-lens detector, lanyard

Size:

Weight:

Color and Material:

Lanyard:

Operating Temperature:

Battery Type: Battery Life: Battery Drain: **Charging Contacts:** Carrier Frequency:

De-Emphasis: FM Deviation:

Signal-to-Noise Ratio:

Squelch:

Frequency Response:

Total Harmonic Distortion:

Controls:

Indicators:

Audio Output Jacks:

Audio Output Power: Acoustic Output: Sensitivity:

Approvals: Warranty:

Compatible Headphones/Earphones:

4.5" L x 2.85" W x 1.2" H (114.3 mm x 72.4 mm x

30.4 mm)

4.6 oz (130 g) with batteries

Black

3 ft (.91 m), allows receiver to be worn around the neck

-10° C to +50° C

2 x AA, alkaline (BAT 001) or NiMH (BAT 026)

Alkaline: 60 hours, NiMH: 30 hours/charge

25 mA, nominal

For use only with CHG 3512

Channel 1: 2.3 MHz, Channel 2: 2.8 MHz

Channel 3: 3.3 MHz, Channel 4: 3.8 MHz

50 uS ±50 kHz

60dB min.

Receiver squelches (mutes) at 40 dB S/N ratio

25 Hz to 16 KHz, +1 dB, -3 dB, electrical response

Less than 1%, electrical response

ON/OFF/VOLUME: combination thumbwheel knob

Channel Selector: four-position rotary switch

Red LED "ON" indicator, flashes to indicate Low battery

3.5 mm stereo mini phone jack

Accepts 3.5 mm mono or stereo phone plug

15 mW max at 32 Ω 110 dB SSPL90 w/ EAR 013

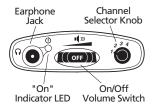
Better than 1 nW/cm² for 40 dB signal-to-noise ratio

CE, FCC, RoHS, WEEE

5 years on receiver, 90 days on accessories

Mono or stereo, 8-32 ohms, 3.5 mm mini phone plug, HED 021, HED 026, EAR 013, EAR 014, EAR 022, NKL 001

Fig. 9: WIR RX22-4 Receiver



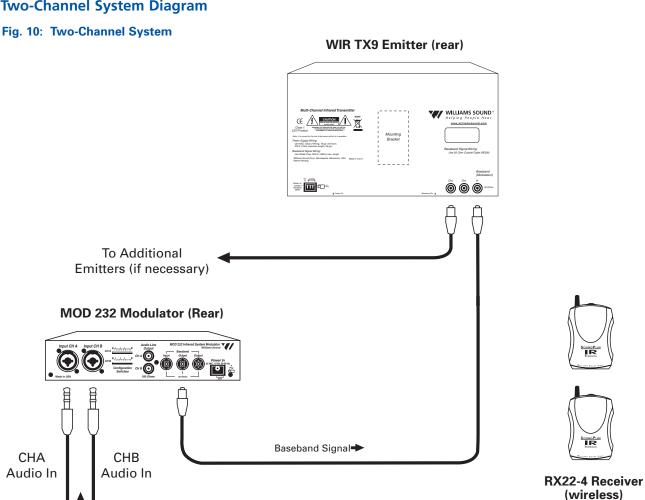
RX22-4 Top



RX22-4 Front



Two-Channel System Diagram



NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE!

SOUND SYSTEM



















Bid Specs

Modulator, Model MOD 232

The infrared system shall consist of separate modulator and emitter units, with portable receivers. The modulator unit shall be a half-rack style, metal enclosure. A rack panel shall be available to mount one or two modulator units within a single EIA rack space. An adjustable floor stand and mounting bracket shall be available to mount the modulator and emitter together for portable operation.

The modulator shall provide two channels of selectable FM carrier signals; 2.3/2.8/3.3/3.8 MHz, so that a single modulator can be used to simultaneously transmit up to two channels, and two modulators can be ganged together to transmit up to four channels simultaneously. The carrier signals shall use 50 kHz deviation and 50 µS pre-emphasis. The carrier signals (baseband) shall be transmitted to one or more emitters by 50 ohm RG58 coaxial cable with BNC-type connectors. A BNC-type baseband input jack and baseband output jack shall be provided on the modulator. The modulator shall be powered by an external 24 VAC, 10 VA, 50-60 Hz power supply, connected via a three-pin Molex power connector.

It shall have a rocker-type power switch, power LED indicator, four carrier indicator LEDs and two bar graph-type LED audio indicators. The modulator shall have a modulated IR LED on the front panel for testing purposes, and a headphone jack that accommodates mono and stereo 1/4" headphones, and channel monitoring switch. The modulator shall have two rotary audio input level controls, and a screwdriver adjustable control for varying the input compression from 1:1 to 4:1. The modulator shall have two timers that automatically shut off the carriers when there is no audio signal present for 15 minutes. The modulator shall have two combination input jacks that accept 3-pin XLR plugs for balanced microphone input or 1/4" TRS plugs for balanced or unbalanced line-level inputs. The XLR inputs shall be low impedance, accept signal levels from 100 µV to 90 mV and supply 15 V simplex power per DIN45596. The TRS jacks shall accept balanced or unbalanced audio signal levels from 21 mV to 10 V. The modulator shall have CE, FCC, RoHS, and WEEE approval and carry a five-year parts and labor warranty.

The modulator shall be the Williams Sound Corp. model MOD 232.

Emitter, Model TX9

The emitter shall be contained in a metal enclosure with a shatter-resistant lens. The emitter shall include an omni-directional mounting bracket for permanent installation and a bracket shall be available for mounting on a floor stand for portable installations. Each emitter shall be powered by a 24 VAC, 50 VA, 50-60 Hz power supply. The power connector shall be a 3-pin Molex-type. The emitter shall have a BNC-type 50 ohm baseband input and a BNC-type baseband 50 ohm output jack. The emitter shall have a repeater circuit to allow multiple numbers of emitters to operate from the baseband signal. The emitter shall have a visible LED indicator for power and for baseband signal. Carrier frequency is 50KHz to 8 MHz. The emitter shall shut off when the baseband signal is not present. The emitter shall provide an effective coverage area of 28,000 sq ft (2,600 sq m) in single channel mode and 18,000 sq ft (1,700 sq m) in two channel mode when using the RX22-4 receiver. The emitter shall be convection-cooled, without fans. The emitter shall have CE, FCC, RoHS, and WEEE approval and carry a five-year warranty on parts and labor.

The emitter shall be Williams Sound Corp. model WIR TX9.

Four-Channel Receiver, Model RX22-4

The receiver shall be a body-pack type with IR detector lens behind face of the unit. The unit shall have a lanyard for handsfree operation. The receiver shall have a rotary-type volume control. The receiver shall operate for 60 hours with two AA alkaline batteries and for 30 hours per charge with NiMH AA batteries. The receiver shall be charged without battery removal via charger contacts in the case. A drop-in charger accessory shall recharge the batteries in 8 hours when used with CHG 3512 charger. The receiver shall be housed in an impact resistant plastic case with a hinged battery door that does not separate from the receiver. The receiver shall receive 2.3 MHz, 2.8 MHz, 3.3 MHz or 3.8 MHz modulated IR signals with 50 µS de-emphasis. The receiver shall have a 3.5 mm stereo phone jack and accommodate low-impedance mono or stereo earphones and headphones. The receiver shall accommodate neckloop telecoil couplers. The receivers shall provide 110 dB SSPL90 output with EAR 013 earbud-type earphone.

The system electrical frequency response shall be 25 Hz to 16 kHz, +1, -3 dB and the signal-to-noise ratio shall be 60 dB. The receiver shall have CE, FCC, RoHS, and WEEE approval. The receiver shall be covered by a five-year parts and labor warranty, excluding earphones, headphones, batteries and chargers.

The receiver shall be the Williams Sound Corp. model WIR RX22-4.





















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